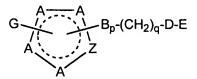
Page 2 of 68

The following list of claims replaces all prior versions and lists of claims in the application:

Listing of Claims:

1. (Amended) A compound having the formula:



or a pharmaceutically acceptable salt, ester, or prodrug thereof, wherein

A, at each occurrence, independently is carbon, carbonyl, or nitrogen, provided at least one A is carbon;

Z is carbon, nitrogen, oxygen, or sulfur;

B is selected from the group consisting of O, NR^2 , $S(O)_r$, C=O, C=S, and C= NOR^3 ,

p is 0 or 1;

q, at each occurrence, independently is 0 or 1;

r is 0, 1, or 2;

R², at each occurrence, independently is selected from the group consisting of:

a) hydrogen, b) S(O)_rR⁴, c) formyl, d) C₁₋₈ alkyl, e) C₂₋₈ alkenyl, f) C₂₋₈
alkynyl, g) C₁₋₈ alkoxy, h) C₁₋₈ alkylthio, i) C₁₋₈ acyl, j) saturated,
unsaturated, or aromatic C₃₋₈ carbocycle, and k) saturated, unsaturated, or
aromatic 5-10 membered heterocycle containing one or more heteroatoms
selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein any of d) – k) optionally is substituted with one or more moieties selected from the group consisting of carbonyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, F, Cl, Br, I, CN, NO_2 , $-NR^3R^3$, $-OR^3$, $-S(O)_rR^4$, $-S(O)_rNR^3R^3$, $-C(O)R^3$, $-C(O)NR^3R^3$, and $-OC(O)NR^3R^3$;

alternatively, two R² groups, taken together with the atom to which they are bonded, form i) 5-8 membered saturated or unsaturated carbocycle, or ii) 5-8 membered saturated or unsaturated heterocycle containing one or more atoms selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein i) – ii) optionally is substituted with one or more moieties selected from the group consisting of carbonyl, F, Cl, Br, I, CN, NO₂, -NR³R³, -OR³, -S(O)_rR⁴, -S(O)_rNR³R³, -C(O)R³, -C(O)OR³, -OC(O)R³, -C(O)NR³R³, -OC(O)NR³R³, Cl₋₆ acyl, aryl, substituted aryl, heteroaryl, and substituted heteroaryl;

R³, at each occurrence, independently is selected from the group consisting of:

a) hydrogen, b) C₁₋₈ alkyl, c) C₂₋₈ alkenyl, d) C₂₋₈ alkynyl, e) C₁₋₈ acyl,

f) saturated, unsaturated, or aromatic C₃₋₈ carbocycle, and g) saturated,
unsaturated, or aromatic 5-10 membered heterocycle containing one or
more heteroatoms selected from the group consisting of nitrogen, oxygen,
and sulfur,

wherein any of b) – h) optionally is substituted with one or more moieties selected from the group consisting of carbonyl, F, Cl, Br, I, CN, NO₂, -NR⁶R⁶, -OR⁶, -S(O)_rR⁶, -S(O)_rNR⁶R⁶, -C(O)R⁶, -C(O)OR⁶, -C(O)NR⁶R⁶, -OC(O)NR⁶R⁶, Cl₋₆ acyl, aryl, substituted aryl, heteroaryl, and substituted heteroaryl;

alternatively, two R³ groups, taken together with the atom to which they are bonded, form i) a 5-7 membered saturated or unsaturated carbocycle, or ii) a 5-7 membered saturated or unsaturated heterocycle heterocycle containing one or more atoms selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein i) - ii) optionally is substituted with one or more moieties selected from the group consisting of carbonyl, F, Cl, Br, I, CN, NO₂, -NR⁶R⁶, -OR⁶, -S(O)_rR⁶, -S(O)_rNR⁶R⁶, -C(O)R⁶, -C(O)OR⁶, -OC(O)R⁶, -C(O)NR⁶R⁶, -OC(O)NR⁶R⁶, Cl₋₆ acyl, aryl, substituted aryl, heteroaryl, and substituted heteroaryl;

R⁴ is selected from the group consisting of:

Page 4 of 68

a) hydrogen, b) -NR³R³, c) -NR³OR³, d) -NR³NR³R³ e) -NHC(O)R³, f) -C(O)NR³R³, g) -N₃, h) C₁₋₈ alkyl, i) C₂₋₈ alkenyl, j) C₂₋₈ alkynyl, k) saturated, unsaturated, or aromatic C₃₋₈ carbocycle, and l) saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein any of h) – l) optionally is substituted with one or more moieties selected from the group consisting of carbonyl, F, Cl, Br, I, CN, NO₂, -NR³R³, -OR³, -SR³, -S(O)_rR⁵, -S(O)_rNR³R³, -C(O)R³, -C(O)OR³, -OC(O)NR³R³, -OC(O)NR³R³, Cl₋₆ alkyl, Cl₋₆ alkenyl, Cl₋₆ alkynyl, Cl₋₆ acyl, aryl, substituted aryl, heteroaryl, and substituted heteroaryl;

R⁵ is selected from the group consisting of:

a) hydrogen, b) -NR³R³, c) -NR³OR³, d) -NR³NR³R³ e) -NHC(O)R³, f) -C(O)NR³R³, g) -N₃, h) C₁₋₈ alkyl, i) C₂₋₈ alkenyl, j) C₂₋₈ alkynyl, k) saturated, unsaturated, or aromatic C₃₋₈ carbocycle, and l) saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein any of h) – l) optionally is substituted with one or more moieties selected from the group consisting of F, Cl, Br, I, CN, NO₂, -NR³R³, -OR³, -SR³-C(O)R³, -C(O)OR³, -OC(O)R³, -C(O)NR³R³, -OC(O)NR³R³, Cl₋₆ alkyl, Cl₋₆ alkenyl, Cl₋₆ alkynyl, Cl₋₆ acyl, aryl, substituted aryl, heteroaryl, and substituted heteroaryl;

 R^6 , at each occurrence, independently is selected from the group consisting of: hydrogen, $C_{1\text{-}6}$ alkyl, $C_{1\text{-}6}$ alkenyl, $C_{1\text{-}6}$ alkynyl, $C_{1\text{-}6}$ acyl, aryl, substituted aryl, heteroaryl heteroaryl, substituted heteroaryl; alternatively, two R^6 groups taken together are -(CH₂)_s-,

wherein s is 1, 2, 3, 4, or 5;

Page 5 of 68

D-E is selected from the group consisting of:

E is selected from the group consisting of:

a)

b)

c)

- d) 5-10 membered saturated, unsaturated, or aromatic heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and optionally substituted with one or more R¹³ groups;
- e) C_{5-10} saturated, unsaturated, or aromatic carbocycle, optionally substituted with one or more R^{13} groups;
 - f) C_{1-8} alkyl,
 - g) C₂₋₈ alkenyl,

Amendment and Response U.S. Serial No.: 10/671,326 Page 6 of 68

- h) C₃₋₈ alkynyl,
- i) C_{1-8} alkoxy,
- j) C_{1-8} aklylthio alkylthio,
- k) C_{1-8} acyl,
- 1) $S(O)_rR^5$; and
- m) hydrogen, wherein any of f(x) - k) optionally is substituted with
 - i) one or more R¹³ groups;
 - ii) 5-6 membered saturated, unsaturated, or aromatic heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and optionally substituted with one or more R¹³ groups; or
 - iii) C_{5-10} saturated, unsaturated, or aromatic carbocycle, optionally substituted with one or more R^{13} groups;

R⁷ is selected from the group consisting of:

a) hydrogen, b) carbonyl, c) formyl, d) F, e) Cl, f) Br, g) I, h) CN, i) NO₂, j) OR³, k) -S(O)_rR⁵, l) -S(O)_iN=R², m) -C(O)R², n) -C(O)OR³, o) -OC(O)R², p) -C(O)NR²R², q) -OC(O)NR²R², r) -C(=NR¹²)R², s) - C(R²)(R²)OR³, t) -C(R²)(R²)OC(O)R², u) -C(R²)(OR³)(CH₂)_rNR²R², v) -NR²R², w) -NR²OR³, x) -N(R²)C(O)R², y) -N(R²)C(O)OR³, z) -N(R²)C(O)NR²R², aa) -N(R²)S(O)_rR⁵, bb) -C(OR⁶)(OR⁶)R², cc) -C(R²)(R³)NR²R², dd) -C(R²)(R³)NR²R¹², ee) =NR¹², ff) -C(S)NR²R², gg) -N(R²)C(S)R², hh) -OC(S)NR²R², ii) -N(R²)C(S)OR³, jj) -N(R²)C(S)NR²R², kk) -SC(O)R², ll) C₁₋₈ alkyl, mm) C₂₋₈ alkenyl, nn) C₂₋₈ alkynyl, oo) C₁₋₈ alkoxy, pp) C₁₋₈ alkylthio, qq) C₁₋₈ acyl, rr) saturated, unsaturated, or aromatic C₅₋₁₀ carbocycle, and ss) saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein any of ll) – ss) optionally is substituted with one or more moieties selected from the group consisting of:

carbonyl; formyl; F; Cl; Br; I; CN; NO₂; OR³; –S(O)_rR⁵;
-S(O)_rN=R², -C(O)R²; -C(O)OR³; -OC(O)R²; -C(O)NR²R²;
-OC(O)NR²R²; -C(=NR¹⁰)R²; -C(R²)(R²)OR³;
-C(R²)(R²)OC(O)R²; -C(R²)(OR³)(CH₂)_rNR²R²; -NR²R²;
-NR²OR³; -NR²C(O)R²; -NR²C(O)OR³; -NR²C(O)NR²R²;
-NR²S(O)_rR⁵; -C(OR⁶)(OR⁶)R²; -C(R²)(R³)NR²R²;
-C(R²)(R³)NR²R¹²; =NR¹²; -C(S)NR²R²; -NR²C(S)R²;
-OC(S)NR²R²; -NR²C(S)OR³; -NR²C(S)NR²R²; -SC(O)R²;
C₂₋₅ alkenyl; C₂₋₅ alkynyl; C₁₋₈ alkoxy; C₁₋₈ alkylthio; C₁₋₈ acyl; saturated, unsaturated, or aromatic C₅₋₁₀ carbocycle, optionally substituted with one or more R⁸ groups; and saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and optionally substituted with one or more R⁸ groups;

R⁸ is selected from the group consisting of:

hydrogen; F; Cl; Br; I; CN; NO₂; OR⁶; aryl; substituted aryl; heteroaryl; substituted heteroaryl; and C₁₋₆ alkyl, optionally substituted with one or more moieties selected from the group consisting of aryl, substituted aryl, heteroaryl, substituted heteroaryl, F, Cl, Br, I, CN, NO₂, and OR⁶; alternatively, R⁷ and R⁸ taken together are –O(CH₂)_rO–;

 R^9 , at each occurrence, independently is selected from the group consisting of: hydrogen, F, Cl, Br, I, CN, OR^3 , NO_2 , $-NR^2R^2$, C_{1-6} alkyl, C_{1-6} acyl, and C_{1-6} alkoxy;

 R^{10} is selected from the group consisting of:

a) saturated, unsaturated, or aromatic C_{5-10} carbocycle, b) saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen,

Page 8 of 68

and sulfur, c) -X-C₁₋₆ alkyl-saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, d) saturated, unsaturated, or aromatic 10-membered bicyclic ring system optionally containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, e) saturated, unsaturated, or aromatic 13-membered tricyclic ring system optionally containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and f) R⁹,

wherein

any of a) - e) optionally is substituted with one or more R¹³ groups, and

 $X \text{ is } O \text{ or } NR^3;$

alternatively, R¹⁰ and one R⁹ group, taken together with the atoms to which they are bonded, form a 5-7 membered saturated or unsaturated carbocycle, optionally substituted with one or more R¹³ groups; or a 5-7 membered saturated or unsaturated heterocycle heterocycle containing one or more atoms selected from the group consisting of nitrogen, oxygen, and sulfur, and optionally substituted with one or more R¹³ groups;

R¹¹ at each occurrence, independently is selected from the group consisting of: hydrogen; an electron-withdrawing group; aryl; substituted aryl; heteroaryl; substituted heteroaryl; and C₁₋₆ alkyl, optionally substituted with F, Cl, or Br;

alternatively, any R¹¹ and R⁸, taken together with the atoms to which they are bonded, form a 5-7 membered saturated or unsaturated carbocycle, optionally substituted with one or more R¹³ groups; or a 5-7 membered saturated or unsaturated heterocycle containing one or more atoms selected from the group consisting of nitrogen, oxygen, and sulfur, and optionally substituted with one or more R¹³ groups;

R¹² is selected from the group consisting of:

 $-NR^2R^2$, $-OR^3$, $-OC(O)R^2$, $-OC(O)OR^3$, $-NR^2C(O)R^2$, $-NR^2C(O)NR^2R^2$, $-NR^2C(S)NR^2R^2$, and $-NR^2C(=NR^2)NR^2R^2$;

R¹³, at each occurrence, independently is selected from the group consisting of: a) hydrogen, b) carbonyl, c) formyl d) F, e) Cl, f) Br, g) I, h) CN, i) NO₂, j) OR^3 , k) -S(O)_rR⁵, l) -S(O)_rN=R³, m) -C(O)R², n) -C(O)OR³, o) -OC(O)R², p) $-C(O)NR^2R^2$, q) $-OC(O)NR^2R^2$, r) $-C(=NR^{12})R^2$, s) $-C(R^2)(R^2)OR^3$, t) $-C(R^2)(R^2)OC(O)R^2$, u) $-C(R^2)(OR^3)(CH_2)NR^2R^2$, v) $-NR^2R^2$, w) $-NR^2OR^3$, x) $-N(R^2)C(O)R^2$, y) $-N(R^2)C(O)OR^3$, z) $-N(R^2)C(O)NR^2R^2$, aa) $-N(R^2)S(O)_rR^5$, bb) $-C(OR^6)(OR^6)R^2$, cc) $-C(R^2)(R^3)NR^2R^2$, dd) $-C(R^2)(R^3)NR^2R^{12}$, ee) = NR¹², ff) -C(S)NR²R², gg) -N(R²)C(S)R², hh) $-OC(S)NR^2R^2$, ii) $-N(R^2)C(S)OR^3$, ji) $-N(R^2)C(S)NR^2R^2$, kk) $-SC(O)R^2$, ll) C_{1-8} alkyl, mm) C_{2-8} alkenyl, nn) C_{2-8} alkynyl, oo) C_{1-8} alkoxy, pp) C₁₋₈ alkylthio, qq) C₁₋₈ acyl, rr) saturated, unsaturated, or aromatic C₅. 10 carbocycle, ss) saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, tt) saturated, unsaturated, or aromatic 10-membered bicyclic ring system optionally containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and uu) saturated, unsaturated, or aromatic 13-membered tricyclic ring system optionally containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur,

wherein any of ll) – uu) optionally is substituted with one or more moieties selected from the group consisting of:

carbonyl; formyl; F; Cl; Br; I; CN; NO₂; OR³; -S(O)_rR⁵; -S(O)_rN=R², -C(O)R²; -C(O)OR³; -OC(O)R²; -C(O)NR²R²; -OC(O)NR²R²; -C(=NR¹²)R²; -C(R²)(R²)OR³; -C(R²)(R²)OC(O)R²; -C(R²)(OR³)(CH₂)_rNR²R²; -NR²R²; -NR²OR³; -NR²C(O)R²; -NR²C(O)OR³; -NR²C(O)NR²R²; -NR²S(O)_rR⁵; -C(OR⁶)(OR⁶)R²; -C(R²)(R³)NR²R²; -C(R²)(R³)NR²R¹²; =NR¹²; -C(S)NR²R²; -NR²C(S)R²;

-OC(S)NR²R²; -NR²C(S)OR³; -NR²C(S)NR²R²; -SC(O)R²; C₁₋₈ alkyl, C₂₋₈ alkenyl; C₂₋₈ alkynyl; C₁₋₈ alkoxy; C₁₋₈ alkylthio; C₁₋₈ acyl; saturated, unsaturated, or aromatic C₃₋₁₀ carbocycle optionally substituted with one or more R⁷ groups; and saturated, unsaturated, or aromatic 3-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and substituted with one or more R⁷ groups;

G is selected from the group consisting of:

a) C₁₋₄ alkyl, b) C₅₋₈ alkyl, c) C₂₋₈ alkenyl, d) C₂₋₈ alkynyl, e) C₁₋₈ alkoxy, f) C₁₋₈ alkylthio, g) C₁₋₈ acyl, gh) saturated, unsaturated, or aromatic C₅₋₁₀ carbocycle, hi) saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur,

$$-\frac{\xi}{q} \xrightarrow{\text{CH}_2} \xrightarrow{\text{CH}_2} \xrightarrow{\text{CH}_2} \xrightarrow{\text{CH}_2} \xrightarrow{\text{R}^{14}} \xrightarrow{\text{O}} \xrightarrow{\text{CH}_2} \xrightarrow{\text{CH}_2} \xrightarrow{\text{CR}^3}$$

$$\frac{\S \left(\begin{matrix} O \\ \end{matrix} \right)}{\S \left(\begin{matrix} C \\ \end{matrix} \right)_{q} \left(C \\ \end{matrix} \right)_{t} \left(\begin{matrix} O \\ \end{matrix} \right)_{q} \left(C \\ \end{matrix} \right)_{t} N$$

$$\frac{\xi \left(\begin{array}{c} O \\ \end{array} \right)}{\xi \left(\begin{array}{c} CH_2 \end{array} \right)_{t}} CH = CH - \left(\begin{array}{c} O \\ \end{array} \right)_{q} \left(CH_2 \right)_{t} N$$

$$\frac{\xi \left(\begin{array}{c} O \\ \end{array} \right)}{\xi \left(\begin{array}{c} CH_2 \\ \end{array} \right)} CH = CH - \frac{O}{I} NR^{14}R^{14}$$

<u>mn</u>)

Amendment and Response U.S. Serial No.: 10/671,326 Page 11 of 68

$$\begin{array}{c|c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \end{array} \end{array} \begin{array}{c} \begin{array}{c} \\ \\ \end{array} \end{array} \begin{array}{c} \\ \end{array} \end{array} \begin{array}{c} \\ \end{array} \end{array} \begin{array}{c} \\ \end{array} \begin{array}{c$$

<u>n</u>e)

<u>op</u>)

$$\frac{\xi \left(\bigcup_{q}^{O}\left(CH_{2}\right), \left(\bigcup_{q}^{O}\right) B \left(\bigcup_{q}^{O}\left(CH_{2}\right), \left(\bigcup_{q}^{O}\right) \left(\bigcup_{q}^{R^{14}}\right) \left(\bigcup_{q}^{R^{13}}\right) \left(\bigcup_{q}^{R^{15}}\right) \left(\bigcup_{q}$$

pq) -(CH₂)_t-NR²-(CH₂)_t-C(R³)(R³)OR³;wherein

- i) a) is substituted with, and
- ii) any of b) i) optionally is substituted with one or more moieties selected from the group consisting of:

carbonyl; formyl; F; Cl; Br; I; CN; NO₂; OR³; -S(O)_rR⁵;
-S(O)_rN=R², -C(O)R²; -C(O)OR³; -OC(O)R²; -C(O)NR²R²;
-OC(O)NR²R²; -C(=NR¹²)R²; -C(R²)(R²)OR³;
-C(R²)(R²)OC(O)R²; -C(R²)(OR³)(CH₂)_rNR²R²; -NR²R²;
-NR²OR³; -NR²C(O)R²; -NR²C(O)OR³; -NR²C(O)NR²R²;
-NR²S(O)_rR⁵; -C(OR⁶)(OR⁶)R²; -C(R²)(R³)NR²R²;
-C(R²)(R³)NR²R¹²; =NR¹²; -C(S)NR²R²; -NR²C(S)R²;
-OC(S)NR²R²; -NR²C(S)OR³; -NR²C(S)NR²R²; -SC(O)R²;
C₂₋₅ alkenyl; C₂₋₅ alkynyl; C₁₋₈ alkoxy; C₁₋₈ alkylthio; C₁₋₈ acyl; saturated, unsaturated, or aromatic C₅₋₁₀ carbocycle,

optionally substituted with one or more R¹³ groups; and saturated, unsaturated, or aromatic 5-10 membered heterocycle containing one or more heteroatoms selected from the group consisting of nitrogen, oxygen, and sulfur, and optionally substituted with one or more R¹³ groups;

t, at each occurrence, independently is 0, 1, 2, or 3;

v is 0, 1, 2, 3, 4, 5, or 6;

R¹⁴ is selected from the group consisting of:

- a) hydrogen, b) C₁₋₆-alkyl, c) C₂₋₆ alkenyl, d) C₂₋₆ alkynyl, e) -C(O)-R³,
- f) -C(O)- C_{1-6} alkyl- R^3 , g) -C(O)- C_{2-6} alkenyl- R^3 , h) -C(O)- C_{2-6} alkynyl- R^3 ,
- i) -C₁₋₆ alkyl-J-R³, j) -C₂₋₆ alkenyl-J-R³; and k) -C₂₋₆ alkynyl-J-R³; wherein
 - (i) any of b) d) optionally is substituted with one or more substituents selected from the group consisting of:

F, Cl, Br, I, aryl, substituted aryl, heteroaryl, substituted heteroaryl, $-OR^3$, $-O-C_{1-6}$ alkyl $-R^2$, $-O-C_{2-6}$ alkenyl $-R^2$, and $-NR^2R^2$; and

(ii) J is selected from the group consisting of:

-OC(O)-, -OC(O)O-, -OC(O)NR²-, -C(O)NR²-,
NR²C(O)-, -NR²C(O)O-, -NR²C(O)NR²-,

-NR²C(NH)NR²-, and S(O)_r; and

R¹⁵ is selected from the group consisting of:

hydrogen; C_{1-10} alkyl, optionally substituted with one or more R^{13} groups; C_{1-6} acyl, optionally substituted with one or more R^{13} groups; aryl; substituted aryl; heteroaryl; substituted heteroaryl; arylalkyl; substituted arylalkyl; and a macrolide.

2. (Original) The compound according to claim 1, having the formula:

Amendment and Response U.S. Serial No.: 10/671,326 Page 13 of 68

$$A$$
 A
 B_p -(CH₂)_q-D-E

wherein

A, at each occurrence, independently is carbon or nitrogen, provided at least one A is carbon, and

p, q, B, D, E, and G are as defined in claim 1.

3. (Withdrawn). The compound according to claim 1, having the formula selected from the group consisting of:

$$B_{p}$$
-(CH₂)_q-D-E, A
 B_{p} -(CH₂)_q-D-E, A
 B_{p} -(CH₂)_q-D-E, A
 B_{p} -(CH₂)_q-D-E, A

wherein

Y is oxygen or sulfur,

A, at each occurrence, independently is carbon or nitrogen, and p, q, B, D, E, and G are as defined in claim 1

4. (Original) The compound according to claim 1, having the formula:

$$G$$
 N
 B_p -(CH_2) Q
 N
 E , or

$$B_{p}$$
-(CH₂)_q

wherein p, q, A, B, E, and G are as defined in claim 1.

5. (Original) The compound according to claim 4, having the formula:

wherein A, E, and G are as defined in claim 1.

6. (Withdrawn) The compound according to claim 4, having the formula:

wherein A, E, and G are as defined in claim 1.

7. (Withdrawn) The compound according to claim 1, having the formula:

$$B_{\rho}$$
 (CH₂)_q

Page 15 of 68

or
$$B_{p}\text{-}(CH_{2})_{q}$$

wherein p, q, A, E, and G are as defined in claim 1.

8. (Withdrawn) The compound according to claim 7, having the formula:

wherein A, E, and G are as defined in claim 1.

9. (Original) The compound according to claim 1, wherein E has the formula:

wherein R⁹ and R¹⁰, at each occurrence, are as defined in claim 1.

10. (Original) The compound according to claim 1, wherein E has the formula:

Amendment and Response U.S. Serial No.: 10/671,326 Page 16 of 68

wherein R^{10} is as defined in claim 1.

11. (Original) The compound according to claim 9, wherein R¹⁰ has the formula:

wherein

K is selected from the group consisting of O, NR^2 , and $S(O)_r$, and x is 0, 1, 2, or 3.

- 12. (Original) The compound according to claim 11, wherein K is oxygen.
- 13. (Currently amended.) The compound according to claim 11, wherein $\pm \underline{x}$ is 1.
- 14. (Withdrawn) The compound according to claim 9, wherein R¹⁰ is -C(O)CH₃.
- 15. (Withdrawn) The compound according to claim 9, wherein R¹⁰ has the formula:

Amendment and Response U.S. Serial No.: 10/671,326 Page 17 of 68

wherein R² and R⁷ are as defined in claim 1.

- 16. (Withdrawn) The compound according to claim 15, wherein R² is C(O)-CH₂-OH.
- 17. (Withdrawn) The compound according to claim 15, wherein R⁷ is hydrogen.
- 18. (Original) The compound according to claim 1, wherein G has the formula:

$$\begin{array}{c|c} \xi & \bigcirc \\ \hline \xi & \bigcirc \\ \hline q & CH_2 \end{array} \begin{array}{c} \bigcirc \\ \hline \\ Q & CH_2 \end{array} \begin{array}{c} \bigcirc \\ \hline \\ Q & CH_2 \end{array} \begin{array}{c} \\ \hline \\ R^{14} & \\ \hline \\ R^{30} & \\ \end{array} \begin{array}{c} R^{13} \\ \hline \\ R^{14} & \\ \hline \\ R^{30} & \\ \end{array} \begin{array}{c} \bigcirc \\ \hline \\ OR^{15} \end{array}$$

and R¹⁵ is a macrolide.

19. (Original) The compound according to claim 1, wherein G has the formula:

and R¹⁵ is a macrolide.

Amendment and Response U.S. Serial No.: 10/671,326 Page 18 of 68

20. (Original) The compound according to claim 1, wherein R¹⁵ is selected from the group consisting of:

$$R^{20}$$
 R^{19}
 R

and pharmaceutically acceptable salts, esters and prodrugs thereof, wherein

R¹⁷ is selected from the group consisting of:

hydrogen, hydroxy protecting group, R³, and -V-W-R¹³, wherein

V is -C(O), -C(O)O-, -C(O)NR²-, or absent, and W is
$$C_{1-6}$$
 alkyl, or absent;

alternatively R¹⁷ and R¹⁴, taken together with the atoms to which they are bonded, form:

Q is selected from the group consisting of:

$$-NR^2CH_2-$$
, $-CH_2-NR^2-$, $-C(O)-$, $-C(=NR^2)-$, $-C(=NOR^3)-$, $-C(=N-NR^2R^2)-$, $-CH(OR^3)-$, and $-CH(NR^2R^2)-$;

R¹⁸ is selected from the group consisting of:

i) C_{1-6} alkyl, ii) C_{2-6} alkenyl, and iii) C_{2-6} alkynyl; wherein any of i) – iii) optionally is substituted with one or more moieties selected from the group consisting of -OR³, aryl, substituted aryl, heteroaryl, and substituted heteroaryl;

R¹⁹ is selected from the group consisting of:

Amendment and Response U.S. Serial No.: 10/671,326 Page 19 of 68

a)
$$-OR^{17}$$
, b) C_{1-6} alkyl , c) C_{2-6} alkenyl, d) C_{2-6} alkynyl, e) $-NR^2R^2$, f) $-C(O)R^3$, g) $-C(O)-C_{1-6}$ alkyl- R^{13} , h) $-C(O)-C_{2-6}$ alkenyl- R^{13} , and i) $-C(O)-C_{2-6}$ alkynyl- R^{13} ,

wherein any of b) - d) optionally is substituted with one or more R^{13} groups;

alternatively, R¹⁴ and R¹⁹, taken together with the atoms to which they are bonded, form:

wherein

L is CH or N, and R²³ is -OR³, or R³;

 R^{20} is $-OR^{17}$;

alternatively, R¹⁹ and R²⁰, taken together with the atoms to which they are bonded, form a 5-membered ring by attachment to each other through a linker selected from the group consisting of:

 $-OC(R^2)(R^2)O-, -OC(O)O-, -OC(O)NR^2-, -NR^2C(O)O-, -OC(O)NOR^3-, \\ -N(OR^3)C(O)O-, -OC(O)N-NR^2R^2-, -N(NR^2R^2)C(O)O-, -OC(O)CHR^2-, \\ -CHR^2C(O)O-, -OC(S)O-, -OC(S)NR^2-, -NR^2C(S)O-, -OC(S)NOR^3-, \\ -N(OR^3)C(S)O-, -OC(S)N-NR^2R^2-, -N(NR^2R^2)C(S)O-, -OC(S)CHR^2-, and \\ -CHR^2C(S)O-;$

alternatively, Q, R^{19} , and R^{20} , taken together with the atoms to which they are bonded, form:

Amendment and Response U.S. Serial No.: 10/671,326 Page 20 of 68

wherein

M is O or NR²;

R²¹ is selected from the group consisting of:

hydrogen, F, Cl, Br, and C₁₋₆ alkyl;

 R^{22} , at each occurrence, independently is selected from the group consisting of: hydrogen, -OR³, -O-hydroxy protecting group, -O-C₁₋₆ alkyl-J-R¹³, -O-C₁₋₆ alkynyl-J-R¹³, and -NR²R²; alternatively, two R^{22} groups taken together are =O, =N-OR³, or =N-NR²R²; and R^2 , R^3 , R^{13} , R^{14} , and J are as described in claim 1.

21. (Original) The compound according to claim 1, wherein G has the formula selected from the group consisting of:

$$\frac{\xi \stackrel{\bigcirc{O}}{\downarrow} (CH_2)}{\xi \stackrel{\bigcirc{O}}{\downarrow} (CH_2)} (CH_2) \stackrel{R^{14}}{\downarrow} (CH_2) \stackrel{R^{13}}{\downarrow} (CH_2) \stackrel{R^{14}}{\downarrow} (CH_2) \stackrel{R^{15}}{\downarrow} (CH_2) \stackrel{R^{15}}{\downarrow}$$

Amendment and Response U.S. Serial No.: 10/671,326 Page 21 of 68

$$\begin{array}{c|c} & & & \\ & & \\ \hline \zeta & & \\ \hline q & \\ \hline \end{array} (CH_2) \begin{array}{c} & \\ \\ \\ \end{array} (CH_2) \begin{array}{c} \\ \\ \\ \end{array}$$

and R¹⁵ has the formula selected from the group consisting of:

22. (Original) The compound according to claim 1, wherein G has the formula:

Page 23 of 68

wherein n = 1, 2, 3, or 4.

23. (Withdrawn) The compound according to claim 1, wherein G has the formula:

wherein n = 1, 2, 3, or 4.

24. (Original) The compound according to claim 1, wherein G has the formula:

wherein n = 1, 2, 3, or 4.

25. (Withdrawn) The compound according to claim 1, wherein G has the formula:

wherein n = 1, 2, 3, or 4.

26. (Withdrawn) The compound according to claim 1, having the formula:

wherein G is as described in claim 1.

27. (Original) The compound according to claim 26, wherein G has the formula selected from the group consisting of:

Amendment and Response U.S. Serial No.: 10/671,326 Page 26 of 68

28. (Withdrawn) A compound having the formula selected from the group consisting of:

or a pharmaceutically acceptable salt, ester, or prodrug thereof.

29. (Cancelled)

30. (Currently Amended) A compound having the structure corresponding to any of the structures listed <u>below: in Table 2</u>,

TABLE 2

Compound Number	Structure
142	P N N N N OH

143	N OH N N N N N N N N N N N N N N N N N N
144	P N N N N N N N N N N N N N N N N N N N
145	P N N N N OH
146	F N N N N OH
147	P N N N N N N N N N N N N N N N N N N N
148	DH OCH3 N N N N N N N N N N N N N N N N N N N
149	HO OCH3
150	N N OCH3 HO IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
151	HO OCH ₃ N OCH ₃ HO OCH ₃ HO HO OCH ₃ HO HO OCH ₃

152	OH OCH
153	OH OCH3 N N HO
175	
176	N=N NO HO OH OH OH OH OH
177	OHOOME HOODHOO

0.00	
178	N=N N=N N=N N=N N=N N=N N=N N=N N=N N=N
179	N=N N=N N=N OH OH OH OH
180	N=N N=N N=N N=N N=N N=N N=N N=N N=N N=N
181	HO OME HO OHO HO OHO HO HO HO HO HO HO
182	

183	
184	N= N N N N N N N N N N N N N N N N N N
185	N=N N=N N=N N=N N=N N=N N=N N=N N=N N=N
186	
187	N=N N=N N HO N HO

203	NO N
204	HO N N N N N N N N N N N N N N N N N N N
205	HO WIND HOH
206	HO N
207	HO W

208	HO NO
209	HO NOH HO NOH NOH
210	HN N N N N N N N N N N N N N N N N N N
211	N N N N N N N N N N N N N N N N N N N

212	HO HO
213	N N N N N N N N N N N N N N N N N N N
214	HO III OH
215	HO OH

216	HO
217	NO TO THE STATE OF
218	MO

219	NC-XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
220	HO H
221	HO NOH OH OH NOW
222	
223	HO OH O
224	HO OH OH N N N N N N N N N N N N N N N N

Dage	30	٥f	68	
Page	22	ΟI	O٥	

225	
226	F HO
227	HO NO
228	HO THO THO THO THO THO THO THO THO THO T
229	

Page	40	of 68	
ugo	τv	01 00	

230	HO OHHO N OH OH
231	HO OH HO N OH HO O
232	HO OH HO N N N N N N N N N N N N N N N N
233	HO WINDH

234	HO OH HO N N N OH OH HO N OH
235	HO TO
236	HO OH HO N OH
237	HO TOH HO NO OH

238	HO JOH OHIO NO
239	HO OH HO NO
240	HO OH HO NO OH HO NO OH
241	
242	

243	HO TOWN ON WINDH
244	HO TOH HO HO
245	N=N N=N N=N N=N N=N N=N N=N N=N N=N N=N
246	HO H
247	HO, HO III O
248	HO O O O O O O O O O O O O O O O O O O

Page 44	of 68
---------	-------

249	HO,,,, OH HO
250	HO, HO
251	CI NO
252	HO H

Page	45	of	68
------	----	----	----

361	IND ON
362	
363	HO I I O O O O O O O O O O O O O O O O O
364	

	∼он
365	F N N N N N N N N N N N N N N N N N N N
366	F N O O O O O O O O O O O O O O O O O O
367	
368	HO NOH NO NOH

369	HO NO HO HO NO HO HO NO HO HO NO HO NO HO NO HO
370	F N N N N N N N N N N N N N N N N N N N
371	HO NO HO HO NO HO HO HO NO HO
372	HO NO HO HO NO HO

	9
373	HO NO
374	F O O O O O O O O O O O O O O O O O O O
375	HO OH
376	P N N N N N N N N N N N N N N N N N N N

377	HO NO
378	HO NO O O O O O O O O O O O O O O O O O
379	
380	HO H

381	HOOH
. 382	HO H
383	HO JOH OH N N N N N N N N N N N N N N N N N
384	HOW TO HOW OH
385	HO O O O O O O O O O O O O O O O O O O

Page	51	of 68	

386	HO NO OH OH
387	HO HO HO O O O O O O O O O O O O O O O
388	
389	P HO

390	HO NO
391	HO NO
392	HO H
393	HO THO THE OH OH
394	HOOH
395	HO,

396	HO HO HILL OH HO HILL OH F
397	HO TO THE TOTAL
398	HO NOT NOT NOT NOT NOT NOT NOT NOT NOT NO
399	HO NO
400	HO OH FFF

401	HO OH
402	HO WILL ON THE OWN THE
403	HO WILLIAM O NO N
404	Br N N N N N N N N N N N N N N N N N N N
405	HO NO

406	HOOH
407	
408	HO H
409	HOOOH

	<u> </u>
410	HOOH
411	
412	HO HO ON OH
413	CI C

Amendment and Response U.S. Serial No.: 10/671,326

Page 57 of 68

414	HO NO ON
415	HO OH OH N N N N N N N N N N N N N N N N

or a pharmaceutically acceptable salt, ester, or prodrug thereof.

- 31. (Previously presented) A pharmaceutical composition comprising a compound according to claim 1 and a pharmaceutically acceptable carrier.
- 32. (Withdrawn) A method of treating a microbial infection in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.
- 33. (Withdrawn) A method of treating a fungal infection in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.
- 34. (Withdrawn) A method of treating a parasitic disease in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.

Amendment and Response U.S. Serial No.: 10/671,326

Page 58 of 68

- 35. (Withdrawn) A method of treating a proliferative disease in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.
- 36. (Withdrawn) A method of treating a viral infection in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.
- 37. (Withdrawn) A method of treating an inflammatory disease in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.
- 38. (Withdrawn) A method of treating a gastrointestinal motility disorder in a mammal comprising administering to the mammal an effective amount of a compound according to claim 1.
- 39. (Withdrawn) The method according to any one of claims 32-38 wherein the compound is administered orally, parentally, or topically.
- 40. (Withdrawn) A method of synthesizing a compound according to claim 1.
- 41. (Withdrawn) A medical device containing a compound according to claim 1.

- 42. (Withdrawn) The medical device according to claim 41, wherein the device is a stent.
- 43. (New) A pharmaceutical composition comprising a compound according to claim 30 and a pharmaceutically acceptable carrier.
- 44. (New) The compound according to claim 1, wherein G is selected from the group consisting of:

a)
$$\frac{\xi}{Q} \xrightarrow{Q} (CH_2) \xrightarrow{Q} (CH_2) \xrightarrow{R^{14}} Q \xrightarrow{Q} (CH_2) \xrightarrow{Q} (CH_2) \xrightarrow{Q} Q \xrightarrow{Q} ;$$
b)
$$\frac{\xi}{Q} \xrightarrow{Q} (CH_2) \xrightarrow{Q} (CH_2) \xrightarrow{Q} (CH_2) \xrightarrow{Q} Q \xrightarrow{Q$$

Amendment and Response U.S. Serial No.: 10/671,326 Page 60 of 68

$$\frac{\xi}{\xi} \stackrel{\text{O}}{=} (CH_2) \stackrel{\text{C}}{=} (CH_2) \stackrel{\text{R}^{13}}{=} (CH_2) \stackrel{\text{R}^{13}}{=} (CH_2) \stackrel{\text{C}}{=} (CH_2) \stackrel{\text{C}}{=}$$

45. (New) The compound according to claim 1, wherein G has the formula:

$$\frac{\S \left(\bigcup_{q}^{O} \left(CH_{2} \right)_{t} CH = CH - \left(CH_{2} \right)_{t}^{O} \left(\bigcup_{q}^{R^{14}} \left(\bigcup_{q}^{R^{14}} \left(\bigcup_{q}^{R^{15}} \left(\bigcup_{q}^{R^{15}}$$

and R¹⁵ is a macrolide.

46. (New) A pharmaceutical composition comprising a compound according to claim 18 and a pharmaceutically acceptable carrier.

Amendment and Response U.S. Serial No.: 10/671,326

Page 61 of 68

- 47. (New) A pharmaceutical composition comprising a compound according to claim 19 and a pharmaceutically acceptable carrier.
- 48. (New) A pharmaceutical composition comprising a compound according to claim 44 and a pharmaceutically acceptable carrier.
- 49. (New) A pharmaceutical composition comprising a compound according to claim 45 and a pharmaceutically acceptable carrier.